REMARKS

The Office Action of February 25, 2003 has been carefully reviewed and these remarks are responsive thereto. Reconsideration and allowance of the instant application are respectfully requested.

Claims 1-7 and 9-20 remain in this application. Claims 1-5, 10, and 17 have been amended. In particular, the claims have been amended to recite growing substrate instead of bulk material to clarify that the invention is measuring moisture content of a growing substrate such as soil, not wood chips or grain. Support for this amendment may be found, for example, in the Field of the Invention.

Claims 16 and 18 stand objected to as depending from a cancelled claim. Claims 16 and 18 have been canceled.

Rejection of claim 4 over Oetiker

Claim 4 remains rejected under 35 U.S.C. 102(b) as being anticipated by Oetiker et al. Claim 4, as amended, is directed to an apparatus for determining the moisture content of growing substrate comprising:

-a supply vessel placed on a weighing device to obtain a measured weight of the growing substrate;

-a feed device for feeding predetermined volumes of growing substrate to the supply vessel;

-a discharge device to release the growing substrate from the supply vessel; and

-a computer for determining the moisture content from the predetermined volume and the measured weight.

It is noted that claim 4 specifically claims a weighing device to measure a predetermined volume of growing substrate in a supply vessel. This weighing device is for single batch of growing substrate (having a predetermined volume). The weight obtained from the weighing device is fed to the computer to determine the moisture content from the weight and the predetermined volume.

Oetiker discloses an apparatus and process for measuring the moisture content of spoilable foodstuffs such as grain on a *continuous* basis. The moisture content is measured *electrically* with a capacitor by measuring the dielectric constant (Є) of the material. That is, Oetiker utilizes electrical signals to obtain the moisture content measurement.

The Oetiker apparatus allows for the *continuous flow* of material through a supply vessel 16 and discharge device 23. Oetiker does not measure the weight of a predetermined volume of the grain and then determine the moisture content from these measurements using a computer.

The apparatus of claim 4 has a weighing device to weigh *batches* of a predetermined volume of material, and utilizes the *measured weight* of the *predetermined volume* to determine moisture content through use of a computer. The apparatus of claim 4 *must* operate in batches because it is necessary to determine the weight of a fixed volume of material. That is, the computer determines the moisture content from the *supplied* volume and the *measured* weight, the weight obtained from the weighing device.

Oetiker does not teach or suggest a weighing device for measuring the moisture content of growing substrate in accordance with instant claim 4. Moreover, the device described in the background section of Oetiker does not weigh a predetermined volume and use a computer to determine the moisture content from the supplied volume and the measured weight. Instead it takes a *pre-measured* weight and uses a *condenser and electrical values* to determine moisture content.

It is not clear how the Oetiker apparatus would be modified to use a condenser to determine moisture content; however, even if so modified, one skilled in the art still does not arrive at the apparatus of claim 4. The background device provides a pre-measured weight. The instant apparatus measures the weight of a predetermined volume of material. The *predetermined volume* and *measured weight* provide the necessary information for the computer to determine the moisture content of the growing substrate. Oetiker does not teach or suggest the apparatus of claim 4. Withdrawal of this rejection is requested.

Rejection of claim 1 over Anderson and Miller

Claim 1 stands rejected under 35 U.S.C. 103(a) as being unpatentable over newly cited

Andersen et al. (U.S. Patent No. 5,685,772) in view of newly cited Miller et al. (U.S. Patent No. 6,210,727).

Anderson is directed to measuring of the specific weight of harvested grain crops. The weight is determined by the torque exerted by an electric motor to move a belt onto which a unit of grain crop is present, while the volume is roughly measured by a measuring device.

According to column 3, lines 12-18, one can determine the moisture content of the harvested grain crops based on weight and volume since the weight increases with moisture. However, Anderson does not teach or suggest utilizing weight and volume to obtain a specific density and then using the specific density to determine the moisture content as required by the instant claim.

Miller does not remedy the defects of Anderson. Initially it is noted that Miller was filed February 1, 2000, whereas the instant application is entitled to a priority date of September 15, 1999. Thus Miller is not a proper reference under 35 USC 102. A certified copy of the priority document is enclosed herewith.

Moreover, Miller is directed to a food processing machine, in particular a food extrusion machine. It is respectfully submitted that one skilled in the art would not have modified an apparatus to measure moisture in grain based on a food extruder. Withdrawal of this rejection is requested.

Rejection of claim 1 over Hane

Claim 1 remains rejected as anticipated by Hane. This rejection is respectfully in error and should be withdrawn.

Claim 1 is directed to a method for determining the moisture content of growing substrate comprising:

-determining the volume of a quantity of growing substrate,

-determining the weight of the quantity of growing substrate,

-determining the specific density from the volume and the weight, and

-finally determining the moisture content by comparing the specific density with a table.

Hane is particularly directed to determining the moisture ratio of wood, although seed and wood chips are not excluded. Hane does not teach determining the moisture ratio of growing substrate.

In addition, Hane discloses measuring the moisture ratio by measuring the attenuation or phase shift of electromagnetic waves. These values both have a relation to the propagation of electromagnetic waves in matter, and they are apparently a measure for the moisture content.

Hane provides a formula in column 1, lines 35 et seq., that the moisture ratio is defined as the weight of the wet material minus the weight of the dry material (the difference being the weight of the moisture content) divided by the weight of the dry material. When those two weights are known, the moisture ratio can be determined. However, it is difficult to determine the weight of the dry material, as the material is not present in its dry form. Hane solves this problem by using the measurement obtained from the propagation of electromagnetic waves.

The process of claim 1 does not obtain a moisture ratio using the formula found in column 1 of Hane. In fact, the process of claim 1 cannot use this formula because the weight of the dry growing substrate is not known or determined. The process of claim 1 does not utilize measurements of electromagnetic waves to obtain a dry weight.

Instead, the process of claim 1 obtains the moisture content of growing substrate by first determining the weight (related to volume), calculating the specific density, and then using empirical knowledge of the relationship between moisture content and specific density to determine the moisture content of the growing substrate. This empirical knowledge is provided in the table. In other words, only the weight of a volume of growing substrate is measured. A calculation using weight and volume provides the specific density. The moisture content is then determined from the specific density. This process is performed without knowledge of the specific weight of the *dry* material.

Hence, the process of claim 1 is completely different from the teaching of Hane. Hane does not teach or suggest the method according to claim 1. Withdrawal of this rejection is requested.

Rejection of claims 2 and 3 over Hane and Cherry

Claims 2 and 3 remain rejected as unpatentable over Hane in view of Cherry et al. This rejection is respectfully in error and should be withdrawn.

Claim 2 is directed to a method for preparing growing substrate with a predetermined moisture content comprising:

-determining the volume of a quantity of growing substrate,

-determining the weight of the quantity of growing substrate,

-determining the specific density of the quantity of growing substrate from the volume and weight;

-determining the moisture content of the quantity of growing substrate;

-calculating the additional amount of water necessary to obtain the predetermined moisture content of the quantity of growing substrate, and

-adding water to the quantity of growing substrate until the weight associated with the desired moisture content is obtained.

Hane is directed to measuring the moisture content of wood. Hane's measurements are used to help determine the most effective means to dry wood. Claim 2 is directed to obtaining specific moisture content in growing substrate. Such growing substrate is used as substrate material for plants, which must have specific moisture content for optimal processing. This growing substrate is not wood.

Specifically, the process of claim 2 relies on two values, the volume of a quantity of growing substrate and the weight of the quantity of growing substrate. Water is added to the growing substrate until the weight is obtained that corresponds to the desired moisture content. This feature of claim 2 is not disclosed in Hane. There is no teaching or suggestion in Hane that the addition of water is desirable or, even if it was desirable, how the desired moisture content would be obtained. Hane does not teach or suggest the process of claims 2 and 3.

Cherry does not remedy the defects of Hane. Cherry is directed to the use of electromagnetic signals to monitor water content of a medium such as compost. The system requires an electromagnetic signal generator and transmission line disposed in a medium. The

types of materials that Hane and Cherry are measuring are different. Moreover, the addition of water in Example 3 of Cherry was made after the compost had been air dried and was part of the process of determing the MAG vs. Signal Propagation Time for FIG 3 and there is no reason that Hane would have been modified based on this example. Withdrawal of this rejection is requested.

Rejection of claims 5-7, 9, and 12-16 over Oetiker and Bajema

Claims 5-7, 9 and 12-16 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Oetiker et al. in view of Bajema et al. These claims depend from claim 4. For the reasons identified above, Oetiker does not teach or suggest the apparatus of claim 4. Specifically the Oetiker device is for *continuous* measurement of moisture using *dielectric constants* and does not teach or suggest a weighing device for weighing a predetermined volume (batch) of growing substrate and a computer for determining the moisture content of the growing substrate based on the volume and weight of the batch. Bajema does not remedy the defects of Oetiker.

Bajema is directed a ground-crop harvester control system. Bajema utilizes electrical measurements to measure the height of the material. It is not clear how or why Oetiker would have been modified to measure the height of the material flowing through it. Moreover, even if so modified, the instant claims require a weighing device.

Column 8 of Bajema mentions measuring moisture level of the growing substrate to provide optimal operating conditions of the conveyor. No information is provided as to how such readings are achieved. There is no suggestion of a weighing device to weigh a predetermined volume of material to determine the moisture content. Moreover, the conveyor operates in a continuous (not batch) mode. There is no reason one skilled in the art would have modified Oetiker based on Bajema and arrive the apparatus of the instant claims. Withdrawal of the instant rejection is requested.

Rejection of claims 10-11 and 20 over Oetiker and Miller

Claims 10-11 and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Oetiker et al. in view of Miller et al. These claims depend from claim 4. For the reasons

identified above, Oetiker does not teach or suggest the apparatus of claim 4.

Miller is not a proper reference under 35 USC 102. Moreover, Miller utilizes bulk measurements of a given volume whereas Oetiker is directed to continuous measurements. It is unclear how one skilled in the art would have modified the continuous feed device of Oetiker based on Miller's device. Withdrawal of this rejection is requested.

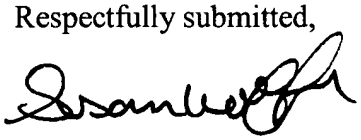
Rejection of claims 17 and 19 over Oetiker, Bajema, and Miller

Claims 17 and 19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Oetiker et al. in view of Bajema et al. as applied to claim 5 and in further view of Miller et al. For the reasons identified above, Oetiker, Bajema, and Miller do not teach or suggest the instant claims.

CONCLUSION

In view of the above amendments and remarks, withdrawal of the instant objections and rejections and issuance of a Notice of Allowance is requested.

Respectfully submitted,



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